

Conductivity Controller LRR 1-60

System description

The LRR 1-60 conductivity controller can be used in conjunction with LRG 16-60, LRG 16-61 and LRG 17-60 conductivity electrodes as a conductivity controller in pressurised steam and hot-water plants and in condensate and feedwater tanks.

The equipment is configured and operated and information is viewed via the URB 60 visual display and operating unit.

Function

The LRR 1-60 conductivity controller is a 3-position stepping controller. It cyclically evaluates the data telegrams from a conductivity electrode (e.g. LRG 16-60, LRG 16-61 or LRG 17-60).

The data are transferred to an ISO 11898 CAN bus via the CANopen protocol.

Function tests and failure diagnosis are performed using the URB 60 visual display and operating unit.

Possible combinations of functions and equipment

Conductivity controller	LRR 1-60
Function	
Evaluation of CAN bus data telegrams from connected LRG 16-60, LRG 16-61 or LRG 17-60 conductivity electrodes.	●
3-position stepping controller with proportional plus integral control (PI controller) and actuation of an electrically operated continuous blowdown valve.	●
MAX alarm when the conductivity limit is exceeded.	●
MIN alarm when conductivity drops below the minimum limit. Alternatively MIN relay for automated intermittent blowdown.	●
The valve position can be displayed if a potentiometer is connected (in the control valve). The valve position is then shown on the URB 60 visual display and operating unit.	●
Actual value output 4-20 mA	●
Volt-free input 24 V DC (standby) for inputting an external command Control OFF/Valve CLOSED/ Intermittent blowdown OFF.	●

Technical data

Supply voltage

- 24 V DC +/-20 %

Power consumption

- Max. 5 VA

Current input

- Max. 0.3 A

Required external fuse

- 0.5 A M

Input/output

- Interface for ISO 11898 CAN bus, CANopen, insulated

Inputs LRR 1-60

- 1 x analogue input for potentiometer 0 - 1000 Ω , two-wire connection (display of valve position)
- 1 x volt-free input 24 V DC (standby) for inputting an external switching command, Control OFF/Valve CLOSED/Intermittent blowdown OFF

Outputs of

MIN/MAX contacts/Control valve (OPEN/CLOSED)

- 4 x volt-free relay contacts, contact material AgNiO.15, AgSnO2

Configurable as:

- ◆ MIN/MAX alarm or MAX alarm and MIN relay as automatic intermittent blowdown
- ◆ Continuous blowdown valve (CLOSED/OPEN)
- Maximum switching current - 8 A at 250 V AC/30 V DC - $\cos \varphi = 1$
- Inductive loads must have interference suppression (RC combination) as per the manufacturer's specification.

Analogue output

- 1 x actual value output OUT 1: 4 - 20 mA, e.g. for an actual value display
- Max. load resistance 500 Ω

Indicators and controls

- 1 x multicolour LED (orange, green, red)
 - ◆ orange = power up
 - ◆ green = running
 - ◆ red = malfunction
- 1 x 4-pole code switch for setting the controller group and baud rate

Protection class

- II double insulated

IP rating to EN 60529

- Housing: IP 40
- Terminal strip: IP 20

Conductivity Controller LRR 1-60

Electrical safety

- Degree of contamination 2 for installation in control cabinet with protection rating IP 54, fully insulated

Admissible ambient conditions

- Service temperature: -10 °C - 55 °C (0 °C - 55 °C at power-on)
- Storage temperature: -20 °C - 70 °C *
- Transport temperature: -20 °C - 80 °C (< 100 hours) *
- Air humidity: Max. 95 % non-condensing
* Only switch on after a 24-hour defrosting period

Housing

- Housing material: Lower section of black polycarbonate (glass-fibre reinforced), front of grey polycarbonate
- 2 x 15-pole terminal strips, removable separately
- Max. cross-section per screw terminal:
 - ◆ 1 x 4.0 mm² solid or
 - ◆ 1 x 2.5 mm² stranded with sleeve, or
 - ◆ 2 x 1.5 mm² stranded with sleeve
- Housing attachment: Mounting clip on support rail TH 35 (to EN 60715)

Weight

- Approx. 0.5 kg

Applicable directives:

The LRR 1-60 conductivity controller has been tested and approved for use in the scope governed by the following directives and standards:

- Directive 2014/35/EU Low Voltage Directive
- Directive 2014/30/EU EMC Directive
- Directive 2011/65/EU RoHS II Directive

Notes for planning

Use a shielded, multi-core, twisted-pair control cable, e.g. UNITRONIC® BUS CAN 2 x 2 x .. mm² or RE-2YCYV-fl 2 x 2 x .. mm² as the bus line.

Pre-wired control cables (with plug and coupling) are available as accessories in various lengths.

The baud rate (transfer rate) is determined by the cable length between the bus terminal devices, and the wire cross-section is determined by the overall power input of the measuring sensors.

Connecting the MIN/MAX/CLOSED/OPEN output contacts

Use a T2.5A fuse to protect the switching contacts.

Please note our terms of sale and delivery.

Connecting the actual value output (4 - 20 mA) or potentiometer (0 - 1000 ohms)

Use a shielded, multi-core, twisted-pair control cable with a minimum conductor size of 0.5 mm², e.g. LIYCY 2 x 0.5 mm².

Maximum cable length = 100 m.

Connecting the standby input (24 V DC)

Maximum cable length = 30 m.

Important notes on connecting the CAN bus system

If two or more system components are connected in a CAN bus network, a 120 Ω terminating resistor must be connected to the first and last units between terminals CL/CH.

The LRR 1-60 conductivity controller is equipped with an internal terminating resistor. To activate the internal terminating resistor in the LRR 1-60 conductivity controller, insert a bridge between the terminals ("Option" and "CH").

Use a central earth to prevent differences in potential in system parts. Connect the bus line shields to one another all the way along, and connect to the central earthing point (CEP).

How to order:

Conductivity controller

Type:

- LRR 1-60, 3-position PI stepping controller, actual value, standby, potentiometer

Stock code:

3816041

Additional modules:

- Conductivity electrodes LRG 16-60, LRG 16-61 or LRG 17-60
- URB 60 as a convenient visual display and operating system

Dimensions

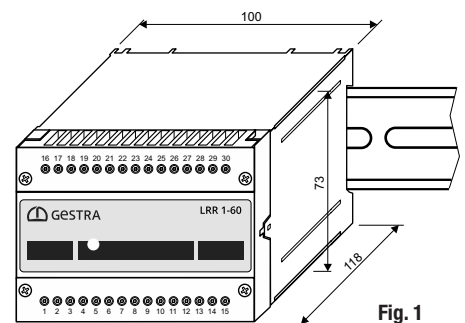
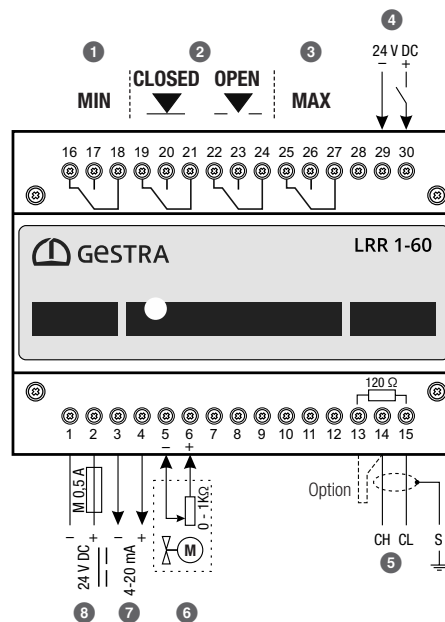


Fig. 1

Wiring diagram



Key

- 1 MIN alarm relay output
- 2 Relay outputs of continuous blowdown valve (CLOSED/OPEN)
- 3 MAX alarm relay output
- 4 Standby input 24 V DC for an external switching command: Control OFF/Valve CLOSED/ Intermittent blowdown OFF
- 5 CAN bus CH = CAN High / CL = CAN Low S = shield
- 6 Indication of valve position - potentiometer (0-1000 Ω)
- 7 Actual value output 4-20 mA
- 8 Supply voltage 24 V DC (M 0.5 A)

Fig. 2

Wiring diagram of CAN bus system

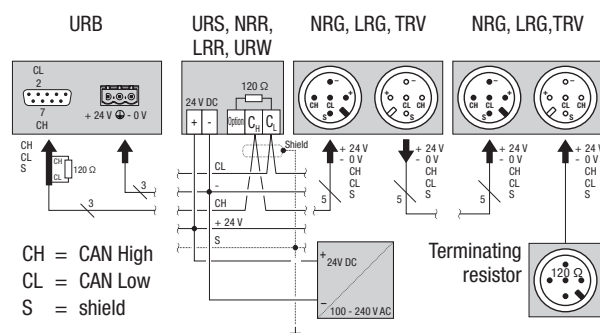


Fig. 3

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